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RAIL-ROAD NEWS.

Missouri Pacific Railroad.

The movements in favor of the "Pacific" railroad, from the city of St. Louis to the Western boundary of Missouri, are encouraging. The St. Louis Republican says:—

Within the past week, the county of Jackson has subscribed $100,000 in the stock of the Pacific Railroad company; and the county of Morgan, the sum of $20,000 in the same company. As soon as the county of St. Louis subscribes the $100,000 which the people have voted, the company will be prepared to notify the Governor that $1,500,000 of stock have been taken by individuals and counties, and the obligation of the State to loan its credit to the amount of two millions of dollars, will be binding.

Troy and Rutland Railroad.

The Troy and Rutland Railroad company have agreed to let the Rutland and Washingington Railroad company run their road for one year, for the use of which they are to pay $9,000, and are to keep the road in good repair. At the expiration of which time, if the Albany Northern Railroad is built, the Rutland and Washington Railroad Company are to take a a lease (during the existence of the charter) of the Troy and Rutland Railroad, and are to pay all taxes, expenses and repairs, and 4 per cent., and one half of the net proceeds above that sum.

Russian Railroads.

The line of the railroad from St. Petersburg to Warsaw has been, by command of the Emperor, already marked out, and the earthworks have been commenced. General Gerstfeldt, who was the assistant of General Kleinmichel in the works of the line from St. Petersburg to Moscow, superintends the construction. As the contemplated line is nearly double the length of the Moscow and St. Petersburg, it is not expected that it will be completed in less than ten years. The works of the last-named line occupied in all eight years.

Accidents on the Hudson River Railroad.

Three accidents took place on Thursday evening, last week, on the Hudson River Railroad, in consequence of the four o'clock train having stopped on the curve to put off some passengers, it is said, who refused to pay their fare. We recommend conductors not to put off passengers who refuse to pay their fare, but to carry them along and give them up to the first constable on the line. The law should deal severely with such characters, and it will if the circumstances are aggravating.

The Legislature of Nova Scotia has passed quite a number of railway bills. This Province has recently exhibited a praiseworthy spirit of enterprise.

Mr. Mayall, an American daguerreotypist, took a series of views of the Great Exhibition on an unprecedentedly large scale, which are spoken of as remarkable for their refinement and accuracy of outline. They are to be reproduced by means of the calotype.

IMPROVED COTTON COILER AND PACKER.

Figure 1.

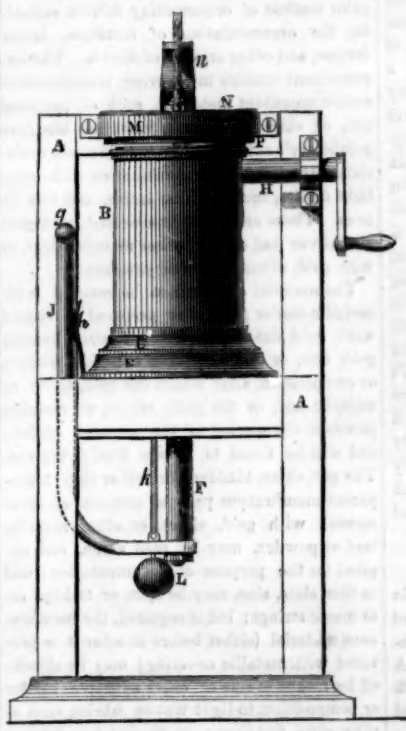
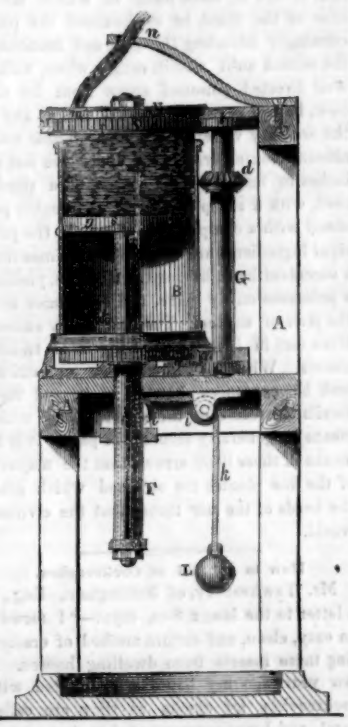


Figure 2.



This is the invention of Mr. M. R. Lemman, of Jackson, Miss., who has taken measures to secure the same by letters patent.

The improvement consists in the employment, within the can in which the cotton is received from the railway head or drawing-frame, and coiled and packed, of a false head, which is loose in the can, and is so operated by suitable mechanism as to exert a pressure always upwards towards the top of the can, where the sliver of cotton is fed in, and compresses the cotton against the upper head of the can. The false head revolves in an opposite direction to the upper head of the can, and by means of this and its upward pressure, the cotton is coiled in a regular and easy manner, without the assistance of the usual rollers for feeding it into the can, and the can is made to receive a much larger quantity than is at present contained in it as ordinarily constructed.

FIG. 3.

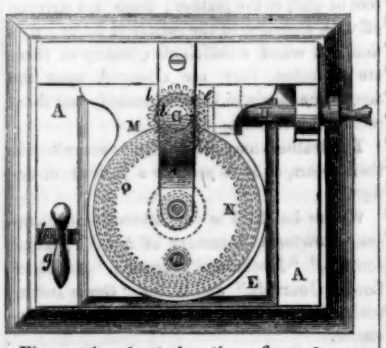


Figure 1 is a front elevation; figure 2 a sectional elevation, taken at right angles to figure 1, and figure 3 a plan view. Similar letters refer to like parts in each figure. A is the framing; B is the can which has a fixed bottom, but is open at the top; it sits in a suitable recess in a disc, D, which rests in a suitable recess or seat in a stationary table, E. Attached to the under side of the disc, C, there is a toothed wheel, D, and this toothed wheel is bored to receive a vertical shaft, F, which slides freely through it, and through the bottom of the can, the table and the disc turning in the bottom of the can and table, but being prevented from turning in the wheel and disc, and being caused to revolve with them, by a key or feather in the wheel, and a feather-way in the shaft. The upper end of the shaft, F, carries the false head, I, which is fitted to the end of the shaft, and rests on a shoulder, being prevented from turning on, and caused to turn with the shaft by suitable means, but is capable of being lifted off easily. Attached to the lower end of the shaft, is a cord, *k*, that passes over pulleys, *i i*. and has a weight, L, attached to its end, which tends to raise the shaft and false head. M is a bracket extending from the back parts of the framing above the can. A revolving head, formed of discs, M N, secured together at a distance apart, is fitted in the bracket; between the discs of this head is secured a toothed wheel, Q; the head, M N, is nearly close to the top of the can, forming, in fact, its upper head, and there is an opening, *m*, in it, at a distance from its centre, through which the sliver enters the can; *n* is a guide through which the sliver is conducted from the drawing frame; it stands precisely over the centre of the can. H is a horizontal shaft, which serves as the driving shaft; it carries a bevel wheel, *e*, which gears into another bevel wheel, *d*, on a vertical shaft, G, and gives motion to the said shaft, which carries at its lower end the pinion, *c*, which gears into one, *b*, of two wheels on a small shaft standing within a recess in the table, E; the other, *a*, of the two wheels, gearing with and giving motion to the wheel, D, and consequently to the false head, I. The shaft, G, carries at its upper end the pinion, *l*, which gears into Q, and gives revolution to the upper head, M N. J is a rod attached by a bent arm at its bottom end, to the bottom of the shaft, F, but not so as to impede its revolution; at its upper end there is a handle, *g*, which can be brought under the spring catch, *h*, when necessary, to hold down the shaft, F, and false head, I. The false head, I, it may be here observed, is covered with cloth on its upper side, to cause the cotton to adhere to and revolve with it.

The operation is performed as follows:—The can, which is detached from the machine, has the false head, I, put into it before it is put in its place. The rod, J, is pressed down to bring the handle, *g*, under the spring catch, *h*, and the can is then put into its place in the disc, C, when the false head, I, drops on the top of the shaft, F. The spring catch, *h*, is then released from the handle, *g*, and the weight, L, draws up the shaft, F, and carries the false head, I, to the top of the can. The machine being set in motion, the cotton, as it leaves the drawing frame, is led through the hole, *m*, in the upper head, into the can, on the cloth surface of the false head, which is revolving in one direction, and the feed or fixed head revolving in the opposite direction; this difference in the direction of the revolution, and the revolution of the hole, *m*, around the axis of the can, and its eccentricity to the guide, *n*, will cause the cotton to be coiled in rapidly, and by being packed, as it is coiled, through the upward pressure of the false head, will be firmly compressed in the can, the rod descending with the false head until the handle, *g*, reaches the spring, *h*, under which, by pressing it, the shaft, F, is disconnected from the false head and drawn out of the can, which may then be removed from the machine.

By the above mode of coiling and packing, the cotton is less liable to breakage, is free from tangles, and the thread produced is of an uniform size, which makes the cloth woven from it more even. One great advantage is in the great quantity of cotton which can be contained in a single can, owing to the compactness of the packing. It is stated to us by the proprietors, who have had it in operation for twelve months, that it does three times the work of any other packer, performs better, and saves a hand at each drawing frame.

The invention is the joint property of Messrs. M. R. and D. R. Lemman, of Jackson, Miss., from whom any information relating to it may be obtained.

Wood for Fuel.

Three cords of green or partially seasoned wood will not warm a room for as great a length of time as one cord well dried, and entirely free from moisture. The rationale is simple, and although to be found in books, is nevertheless true; it may be thus understood:—

'Substances contain heat as latent in proportion to their bulk.' Thus if we pour a cubic inch of alcohol on our head and fan it, the one cubic inch assumes the form of vapor and becomes 1,700 cubic inches, capable of receiving a proportionate amount of heat, and therefore takes heat from the nearest hot object, the head, causing it to keep cool. Water placed on the head and then rapidly evaporated, will cool the head from the same cause. It may now be understood that a single pint of water contained in a piece of wood thrown on the fire, will first become 1,700 pints of vapor, and that this vapor will increase in size one-five-hundreth part of its bulk for every degree added, so that it travels up the chimney, carrying with it as much heat as would warm all the air in a large room for a considerable space of time.

Many suppose that green wood may be burned in stoves with profit. This is an error, for the vapor will pass up the pipe carrying with it the heat, and preventing its being received by the iron and radiated into the room.

Berkshire Marble.

An examination by scientific gentleman at Washington, of the strength, durability, and beauty of the various descriptions of American marble, with a view to their use in the enlargement of the capitol, has resulted decidedly in favor of the Egremont marble, in Berkshire Co., Mass.

The submarine telegraph between England and France, is now in full operation. On the 13th ult., the first message was sent giving the price of the English funds.

MISCELLANEOUS.

Report of the Secretary of the Interior.

"As the Commsisioner Patents reports directly to Congress, it is unnecessary to present a review of the operations of that Bureau. There is one point, however, on which I deem it my duty to offer some explanation.

The Industrial Exhibition which was opened in London in the month of May, naturally attracted much attention in this country. It was the first occasion in the history of the world, when all the nations of the earth were invited to make an exhibition of their natural productions, and the results of labor in all the departments of industry.

Believing that great advantages would accrue to the people of the United States from having an agent present at this interesting display, who was competent to understand and describe all the objects of interest which might be exhibited, I authorized Mr. Charles F. Stansbury, an intelligent officer connected with the Patent Office, to go to London and discharge that duty.

He accordingly spent several months in making a minute examination of the most choice and valuable products of nature and art which were presented; and I have no doubt that his report, which is now in course of preparation, will be a valuable and interesting document. He was instructed to inform himself particularly in regard to all the natural productions, implements, machinery, manufactures, and processes of manufactures, works of art, and other objects of interest, peculiar to each nation, so as to impart the knowledge thus acquired to the people of our country.

As all the latest improvements in machinery and the useful arts were there displayed, a careful description of them will be of great value to the Patent Office, in enabling it to decide whether machines and other alleged inventions and discoveries are really new and useful, so as to be proper subjects of patents, or copied from those exhibited at the London Fair. The farmer and mechanic will also be benefited by obtaining information as to the most approved implements, tools and processes employed in their respective occupations; and the general reader cannot fail to be interested and instructed by an accurate and authentic account of the most extensive and varied collection of useful objects which has ver been brought together from the different quarters of the world. It is proposed to append this report to that of the Commissioner of Patents; and, if Congress shall deem it proper, to publish it with the document. It will doubtless greatly enlarge the circle of useful information, and give a new stimulus to the enterprise and industry of the people.

[We have selected the above extract from Mr. Stewart's Report. It is all that we have in it relating to the Patent Office. We certainly expected that he would have said something about his intention of appropriating part of the Patent Office Building for offices belonging to his business, but he has perhaps prudently deemed it best not to mention the subject at present.

The object for which Mr. Stansbury was commissioned as mentioned above, was commendable in every sense of the term, yet it was impossible to disguise the fact, that the whole spirit of the Patent Office, with some honorable exceptions, is to find objections to urge against granting patents for new and useful inventions, rather than extending encouragement to them. We regret to see such a spirit; it is anything but wise, politic, or just. When Mr. Stansbury's Report is published, we will be able to say more upon this subject.

Women in Cochin China.

In Cochin China, as in all countries where civilization has made but little progress, the women are doomed to the most laborious occupations. A traveller in that country says the women may be seen standing from morning to night, in the midst of pools of water up to the knees, occupied in transplanting rice. They undertake the labors of tillage, and the various employments of agriculture—while those who live in seaports, besides the management of their domestic concerns, undertake the superintendence of the various branches of commerce. They even assist in constructing and repairing the cottages—they conduct the manufactures—they ply the boats on the rivers, and in the harbors, and carry the articles of produce to market.

The greatest blessing physically to these poor women would be some labor-saving machines. When the wheel was first invented, it was intended by the inventor—a Cappadocian shepherd, to lessen the severe toil of his countrywomen. Genius is benevolent, even those inventions relating to war, have been the means of lessening its horrors.

How the Bushmen Obtain Ostriches.

A favorite method adopted by the wild bushman for approaching the ostrich and other varieties of game, is to clothe himself in the skin of one of these birds, in which, taking care of the wind, he stalks about the plain, cunningly imitating the gait and motions of the ostrich until within range, when, with a well directed poisoned arrow from his tiny bow, he can generally seal the fate of any of the ordinary varieties of game. These insignificant looking arrows are about two feet six inches in length; they consist of a slender reed, with a sharp bone head, thoroughly poisoned with a composition, of which the principal ingredients are obtained sometimes from a succulent herb, having thick leaves, yielding a poisonous milky juice, and sometimes from the jaws of snakes. The bow rarely exceeds three feet in length; its string is of twisted sinews. When a bushman finds an ostrich's nest he ensconces himself in it, and there awaits the return of the old birds, by which means he generally secures the pair. It is by means of these little arrows that the majority of the fine plumes are obtained which grace the heads of the fair throughout the civilized world.

How to get Rid of Cockroaches.

Mr. Tewkesbury, of Nottingham, Eng., in a letter to the Manx Sun, says:—"I forward an easy, clean, and certain method of eradicating these insects from dwelling houses. A few years ago my house was infested with cockroaches (or clocks as they are called here), and I was recommended to try cucumber peelings as a remedy. I accordingly, before bedtime, strewed the floor of those parts of the house most infested with the vermin, with the green peel, cut not very thin from the cucumber, and sat up half an hour later than usual to watch the effect. Before the expiration of that time the floor where the peel lay was completely covered with cockroaches, so much so that the vegetable could not be seen, so voraciously were they engaged in sucking the poisonous moisture from it. I adopted the same plan the following night, but my visitors were not near so numerous—I should think not more than a fourth of the previous night. On the third night I did not discover one; but anxious to ascertain whether the house was quite clear of them, I examined the peel after I had laid it down about half an hour, and perceived that it was covered with myriads of minute cockroaches about the size of a flea. I therefore allowed the peel to lie till morning, and from that moment I have not seen a cockroach in the house. It is a very old building; and I am certain that the above remedy only requires to be persevered in for three or four nights, to completely eradicate the pest. Of course it should be fresh cucumber peel every night."

[A far better and more certain remedy for cockroaches is a powder made by Mr. Lyons, of this city (New York). From experience, we say this; as it has to our knowledge proved itself to be what it is named, the "Magnetic Cockroach Exterminator."

Progress of Our Railroads.

The first railroad ever made in this country was only commenced twenty-three years ago. It was a short road in Massachusetts, three miles in length, called the Quincy Road, but there was no locomotive then. The first railroad in the State of New York was the Mohawk and Hudson, sixteen miles in length, now called the Schenectady; it was commenced in 1830, and finished in 1833—only eighteen years ago. On the first of January last there were in operation, in the State of New York, one thousand four hundred miles of railroad, costing $56,200,000. There was nearly the same number of miles in Massachusetts; while in the entire of the New England States, the miles amounted to 2,644, costing $96,945,450. The total in operation in the United States, in January, 1851, was 8,797, costing $286,455,078. Since then a sufficient number of miles has been completed to increase the grand total to 10,000 miles, and the amount of investments to $320,000,000. In June, 1836, the writer of this took eight days to go from Schenectady to Utica; he was detained three days by a break in the canal; he went the same distance last year in three hovrs. What a change!

Recent Foreign Inventions.

Ornamenting Fabrics.—Mr. Puckeridge, of London, recently patented the following singular method of ornamenting fabrics suitable for the ornamentation of furniture, ladies' dresses, and other articles of fabrics. The improvement consists in covering transparent or semi-transparent materials, such as prepared gut, or skins of animals, weazens, bladders, goldbeater's skin, or other membranous materials, either alone or in combination with other light fabrics, such as silks, satins, and fine linens. These are to be ornamented with gold leaf, silver leaf, or any other metallic leaf, or with gold, silver or bronze powders.

The material or fabric to be covered with metallic leaf or powder is prepared or coated with gold size, japanners' gold size, burnish gold size, or other similar adhesive matter, or composition, after which the gold, silver, or metallic leaf, or the gold, silver, or metallic powders, are applied to the prepared surface, and will be found to adhere firmly thereto. The gut, skins, bladders, or other thin transparent membranous parts of animals, so ornamented with gold, silver, or other metallic leaf, or powder, may be used alone, and applied for the purpose of ornamentation; and in this state, also, may be spun or twisted into music strings; but if required, the membranous material (either before or after it is provided with metallic covering,) may be attached by means of size or other adhesive matter or composition, to light woven fabrics, such as silks, satin, fine linens, or similar fine fabrics. In this state it will be found peculiarly applicable for ornamenting curtains and various kinds of furniture or other articles.

The membranous material thus provided with a metallic surface, when attached to woven fabrics, will be found to have on both sides all the appearance and lustre of the metallic substance with which it is coated, and will possess the advantage of strength and tenacity, so that the material may be employed for ornamental purposes, such as ladies' dresses, hangings, and other like purposes.

Feathers for Ornamenting Dresses.—Mr. J. P. Booth, of Cork, Ireland, recently took out a patent for employing portions of the feathers of birds for the purpose of decorating or ornamenting the surfaces of woven fabrics. The feathers of the turkey are what the patentee prefers to all others for the purpose; and the portions of them which he employs, are the downy substances from near the root or quill of the feather; these are stripped off with a portion of the cuticle or horney portion, and when a sufficinnt quantity of these are collected. they are arranged upon the face of the fabric to be ornamented, and there secured by cement.

The feathers may be arranged according to their colors, so as to produce a pattern or design.

We are indebted to our invaluable exchanges, "Newton's Repertory of Arts," "Patent Journal," "Mechanics' Magazine," and other London Journals," and to the "Genie Industriel," &c., of Paris, for the above, in substance.

Suspension Bridges.

Messrs. Editors—There is an error in the Scientific American of Nov. 29th, which I did not discover until to-day:—it is not W. Serrell, C. E., of this city (who, so far as I know, must be myself), but it is my son, Edward W. Serrell, also of this city, who is building the suspension bridge over the River St. Johns, New Brunswick, a little way above the city of the same name. This bridge is intended to be similar, in general character, to that constructed by the same party across the Niagara, between Lewiston and Queenston, of 849 feet span; but that at St. Johns will be about 622 feet span. These, however, are only the beginnings of iron bridges on this continent, as the public will learn in due time.

Yours, respectfully, Wm. Serrell, C. E.

New York, Dec. 5, 1851.

Setting Teeth on Pivots.

The following remarks from the Dental Recorder will be interesting to many of our readers:—

"Of all the modes hitherto adopted for supplying the place of natural teeth with artificial substitutes, we must regard this method of pivoting, when properly performed, as the very best. Of course, these remarks can only apply to the incisor and cuspid teeth. And why it is regarded by so many in the profession as an unimportant and almost useless operation (unless because of its extreme simplicity), we are at a loss to determine. We may be laboring under some error or misapprehension upon this subject, and if so, we would thank the profession to set us right. But according to our observation, the practice has become quite too common, of using plates, where teeth might be pivoted much more advantageously, both with respect to their comfort and utility, as well as cost to the patient.

Instances are by no means rare, where strong and healthy fangs have been removed, to make way for a plate, where the front teeth only were substituted. This, we can but regard as decidedly wrong—and, under the circumstances, mal-practice. For who will contend, where three or four front teeth are needed, and the fangs are strong and healthy, that pivot teeth, are not much the best in every particular.

We hold it indisputable, that if teeth could be as well secured without plates, as with them, plates would not be used by the profession. But we submit to them as to a necessary evil, for the want of a better mode of setting teeth, except in the cases above referred to. But, in such cases, the following are among the advantages of pivot teeth:—

When well fitted, and firmly inserted, they are most like the natural organs of any artificial teeth that can be used.

They are more useful, and more healthy.

They interfere much less with the organ of taste, and are more cleanly.

The constant accumulation of particles of food and other matter around plates to which artificial teeth are attached when worn in the mouth, serve to render them offensive and unhealthy, and the strictest attention to cleanliness can only prevent the disagreeable consequences here alluded to.

But pivot teeth, when nicely adjusted to a healthy fang are much less troublesome in this regard, and present no obstacle to the gustatory sensations. But that which constitutes the greatest objection to plates for front teeth, is the use of clasps to retain them in their proper positions, as these clasps or bands will inevitably destroy the teeth to which they are secured, and thus impose upon the patient the absolute necessity of procuring a new set of teeth, in a very few years. Whereas, pivot teeth would have answered a better purpose—prevented the loss of those teeth to which the clasps were secured, and could have been furnished at less expense.

For these reasons, therefore, we must deprecate the practice of removing good healthy fangs to make way for a plate, when the front teeth only are to be substituted, believing as we do, that pivot teeth, properly inserted, are altogether preferable, under such circumstances.

The duration of teeth inserted in this way, must of course depend upon the circumstances of the case with each individual. But we have found their average under favorable auspices, to be some ten or twelve years. Of course, where so much depends upon constitutional health, and personal care, this period must vary to some considerable extent.

Submarine Petrifications.

We learn from a French paper that a vessel's mast has been discovered in the sea near Gibraltar, buried in the sand at the depth of about twenty fathoms. It was completely petrified, and is supposed to have been in the water at least a hundred years. It was found by some Gibraltar fishermen, and has been sent to the British Museum.

[For the Scientific American.]

Motion.

The word motion signifies change of place, or the translation of a body from one place to another. It animates all nature, extends through all extent, and affects every particle of matter in the Universe. We behold its effects in the rising and setting sun, moon, and stars,—in the interposition of celestial spheres mutually hiding each other, and thus producing eclipses and occultations,—in the progress of light and sound, and the rolling year with its changes and seasons, in the glowing cheek of health and beauty, and in the growth, decay, and dissolution of vegetables, animals, and man. We see motion itself in the forked lightning's flash, in the cheerful blazing fire, in the ascending smoke and vapor,—in the flying clouds, and falling rain, snow, and hail,—in the flowing streams and tides, and in the effects of the moving winds and hurricanes. In fact, every where, change in condition, implying motion in place or relative situation, is constantly progressing. Nor does one motion interfere with another in the least. Whether waking or asleep, there are in our own bodies numerous dependent motions carried on, while, at the same time, the earth rolls on her axis, pursues her journey round the sun at the rate of sixty-eight thousand miles an hour, and the whole solar system is carried round some far distant centre completing its revolution only after more than a hundred millions of years, with a velocity beyond human comprehension; and to these dependent and independent motions, any others may be added without interfering in the least.

How multifarious are these motions, how extensive and how grand! How rapid some, and others how slow! And yet, the only natural motive powers in the Universe are attraction and repulsion. These are the golden chains that link atom to atom and world to world, and yet keep every thing in its place, preventing all the great bodies in God's boundless dominions from rushing upon, or receding from each others' control. How simple these agents and how glorious the result! Franklin said, "God is the greatest mechanic in the Universe." Was he right?

There are, as it were, two kinds of motion constantly going on, in and around us: one among the particles of bodies, and the other among bodies themselves. The former belong to the sciences of Physics, Chemistry, or Physiology,—and the latter constitute the science of Mechanics.

Motion, in this latter sense, is either absolute or relative. Absolute motion is that which is relative to the space in which the Universe exists; but we can not define it in any particular, for the Universe has no limit, and there is no body in it that is absolutely at rest. Relative motion is referred to some other object which, of course, is also in motion, but may be considered to be at rest with regard to a third body. Thus the earth is in relative motion with regard to the sun and all the celestial bodies, and they are also in relative motion with regard to each other, but in absolute motion with regard to the Universe, which is at rest at the same time. A man standing on a sailing vessel, has motion with the vessel, relative to the earth or shore, or to another vessel, at rest with regard to the earth, or sailing in a different direction or with a different velocity; but, if he walk towards the stern of the vessel as fast as the ship advances, he will be at rest relative to the shore, but in motion relative to the ship.

Motion is said to be quick or rapid when the eye cannot readily follow it, as a flash of lightning, the running of a steam engine or animal; and slow, as the hour-hand of a clock. Both these terms have reference to some intermediate velocity or rate of motion, which is in the speaker or writer's mind.

Motion is called straight or rectilinear, when the moving body continually tends to and approaches towards the same point; but bent, or curvilinear, when it continually tends to a different point; and this last is called circular when the moving body keeps continually at the same distance from a given point, which is the centre of the curve.

Motion is performed in space and requires time. Both space and time are either absolute or relative; but of absolute space and time we know nothing except their existence, because there is no body at rest to which we can refer the former, and the latter can only be measured by the periodic revolution of some celestial body, for all human contrivances for this purpose are necessarily defective, the greatest artists in the world having been comparatively fruitlessly employed in the construction of chronometers which should accurately measure even a single day. That portion of absolute time which the earth requires to rotate once on her axis, we call a day; and the time required to perform one of her revolutions round the sun, a year. But this latter period, compared with the former, has never been accurately ascertained; the most eminent astronomers make it as follows:—Mayer, 365 ds. 5 hrs. 48 m. 42½s.; Lalonde, 365 ds. 5 hrs. 48m. 48s.; Zach, 365 ds. 5h. 48m. 50·9s., and Delambre, 365 ds. 5h. 48m. 51s.

A mechanical law relates to and regulates the motion of bodies, both in nature and art. Thus:—It is a law of nature and of mechanics that bodies near the earth, and near all other celestial bodies, should gravitate, and, when left at liberty, should fall in a straight line toward their centres.

The four following general laws of motion have been deduced from constant and universal experience, viz:—

1. Every body must continue in its state of rest, or, if impelled by a single force, must persevere in its uniform motion in a straight line, unless it be compelled to change that state of rest or motion by some extrinsic force.

2. Every change from rest to motion, or in the velocity or direction of progressive motion is proportional to the force that produces it, and is always in the direction in which that force is impressed, and in a straight line with it.

3. Action and re-action are always equal and contrary to each other.

4. A constant force produces accelerated or retarded motion, according as it acts in the same or a contrary direction to motion already existing.

H. R. Schetterly.

Howell, Mich.

On the Progress of the Wave System of Naval Architecture.

John Scott Russel, author of the "Wave Line Theory," in giving an account to the British Association for the Advancement of Science, of the year's progress made in the introduction of his theory, speaks of the excellent American work on Naval Architecture, by Mr. John Griffiths, of this city. He says of it:—

"It contains drawings of many of the most recent and celebrated vessels constructed in that country. The author of that treatise does not hesitate to avow frankly the general adoption of the principles of the wave system, by the builders of the best and fastest vessels in America. He gives accurate drawings, which are evidently made in accordance with it.

He quotes experiments, as high as twenty-four miles an hour, which speed has been attained by its use. He unhesitatingly declares his own implicit belief in the system and entire adoption of it. In our own country the most eminent builders of fast steam vessels continue to adopt the most prominent characteristics of the wave system, viz., hollow water lines for the bow, much fuller water lines abaft than forward—the greatest breadth nearer the stem than the bow."

Respecting his own efforts in steamboat construction, Mr. Russel mentions the following peculiar case:—

"During the last year an opportunity has presented itself of obtaining one of the most decided practical experiments on a larger scale regarding the excellence of the new form for steam vessels. It is very rare that in ordinary practice one can obtain an experiment which will exactly determine the relative merits of two different forms of ships, because there is generally some diversity in the application of the power or in the circumstances, as, for example, a difference between the excellence of the engines, which affect materially the result, and which is quite independent of the qualities of the ship.

But if one could get an experiment of the following nature,—if one could take a steam engine of a given power, and supply it with as much steam of a given pressure as the engines could use; and a given pair of paddles, so as to apply that power in exactly the same way in both cases, and having first tried these engines in a ship on the old system, if one could then simply take these engines out of that vessel and place them in one built on the new system, of equal or greater tonnage, then if the new vessel being tried in similar circumstances, should be found to excel the old one, we should have a result in a practical form which could not fail to be satisfactory. Such is the experiment which has just been obtained on a sufficiently large scale to be entirely conclusive. A pair of marine engines of 220 horse-power had been working on board a wooden steam vessel of 550 tons, being a proportion of one horse-power to two tons nearly. The beam of the vessel was 24 feet, and her draft of water 9 feet. This vessel was built on the old system, according to his own plan, by one of the most eminent builders of steam vessels.

This vessel was placed on the line between London and Antwerp, and realized a maximum speed of ten miles an hour. These engines, with the same paddle-wheels, were then taken out of the vessel, and were placed in a new iron vessel, built upon the wave system, by Messrs. Robinson and myself. This vessel was of larger beam and greater length of body than the former, being 570 tons, with 25 feet beam and 9 feet draft. The experiment has now been tried with the same old engines, but repaired and furnished with new boilers capable of supplying the full amount of steam to the engines. The vessel has not been made unsually sharp or fine, but, on the contrary, is a capacious sea-going vessel, with capacity for 150 tons of cargo more than the former vessel. The new form of vessel with the old engine has attained a maximum speed of 15 miles an hour—being a clear gain of speed of five miles an hour. It is important to observe, that where speed is obtained by an improved shape of vessel it is obtained at the least possible first cost and greatest economy in daily use."

Chemical Catalysis.

Among the most remarkable phenomena within the range of physical chemistry are those of Catalysis, or, as it has also been called, the "Action of Presence." There are a certain number of bodies known to possess the power of resolving compounds into new forms without undergoing any change themselves. Kirchoff discovered that the presence of an acid, at a certain temperature, converted starch into sugar and gum, no combination with the acid taking place. Thenard found that manganese, platinum, gold, and silver, and, indeed, almost any solid organic body had the power of decomposing the binoxide of hydrogen, by their presence merely, no action being detected on these bodies. Edmund Davy found that powdered platinum, moistened with alcohol, became red-hot, fired the spirit, and converted it into vinegar, without undergoing, itself, any chemical change. Dœbereiner next discovered that spongy platinum fired a current of hydrogen gas directed upon it, which, by combining with the oxygen of the air, formed water. Dulong and Thenard traced the same property, differing only in degree, through iridium, osmium, palladium, gold, silver, and even glass. Further investigation has extended the number of instances; and it has even been found that a polished plate of platinum has the power of condensing hydrogen and oxygen so forcibly upon its surface, that they are drawn into combination and form water, with a developement of heat sufficient to ignite the metal.

This power, whatever it may be, is common in both organic and inorganic nature, and on its important purposes Berzelius has the following remarks:—

"This power gives rise to numerous applications in organic nature; thus, it is only around the eyes of the potato that diastase exists; it is by means of catalytic power that diastase, and that starch, which is insoluble, is converted into sugar and into gum, which, being soluble, form the sap that rises in the germs of the potato. This evident example of the action of catalytic power in an organic secretion, is not, probably, the only one in the animal and vegetable kingdom and it may hereafter be discovered that it is by an action analogous to that of catalytic power, that the secretion of such different bodies is produced, all which are supplied by the same matter, the sap in plants, and the blood in animals."

It is, without doubt, to this peculiar agency that we must attribute the abnormal actions produced in the blood of living animals by the addition of any gaseous miasma or putrid matter, of which we have, in all probability, a fearful example in the recent progress of Asiatic Cholera; therefore the study of its phenomena becomes an important part of public hygiene.

Geology of Pennsylvania.

The State geological survey of Pennsylvania has been prosecuted in the Southern Anthracite Basin, since the month of July last, by Prof. Rogers and his corps; but the work is now suspended on account of the inclemency of the season. The researches, thus far have been conducted with care and method, and have resulted in a large increase to the positive knowledge before possessed of the distribution and range of the veins of coal.—Nearly all the smaller basins into which the general coal-field is divided, have been traced and connected; and their centres, or the lines of separation of the Northern and Southern dips, are accurately determined by measurements. Two extensive sets of surveys have been carried through the valley, and preparations are in progress for a Topographical Map, which shall exhibit the leading features and values of the coal-lands. Professor Rogers expresses an opinion, that large amounts of money have been wasted by the present mode of sinking slopes down the inclination of the coal-veins, on the sides of the basins.—Perpendicular shafts in the basins are recommended as far preferable as well as less expensive.

New Fencing Material.

Mr. A. Coleman, writing to the Ohio Cultivator, gives an account of a new kind of fencing which has lately been introduced into the Miami Valley, among the farmers. "It consists of coarse sand and pebbles as gathered from our water courses, up to the weight of a pound or more, put up in casing upon the grouting principle, with sufficient lime to unite into a mass.

The mode recommended of constructing the fence is as follows: a trench is dug on the line of fence to be constructed, eight or ten inches deep and a foot wide, and filled with any waste stone to the surface, to prevent the action of frost; upon this is placed a casing of an inch and a half plank, one foot wide, into which the material recently mixed is thrown; the plank to be confined to make the fence of the requisite thickness should be about ten inches at the base and eight inches at the top. When the first filling of the casing has sufficiently hardened, the casing is to be lifted and re-filled till the required height is attained.

A height of four feet and a half makes a very good fence, especially with a wire of suitable size drawn six or eight inches above the wall by supports inserted while the wall is erecting. Two wires, six or eight inches apart, make a secure garden fence, as no fowl will easily pass the wires."

Where fencing timber is scarce, this method of making fences is well worthy the attention of our farmers.

Harvesting Turnips.

Pulling turnips and cutting off the tops by hand and knife, which is almost the universal practice among American farmers, is about as far behind the age of improved husbandry as digging up the land with a hoe, instead of plowing. In England, turnips are almost invariably planted in drills; at pulling times the laborer passes along the row with a sharp light hoe, with which he dexterously cuts off the tops, throwing them by the same motion into the hollow between two rows. Another person follows with another hoe, which he strikes below the bulb, so as to cut off the top root, throwing the turnips of two rows together ready for the gatherer to basket and carry to the pile or cart for storage. Sometimes one hand performs both operations of topping and digging, but two work to the best advantage.

NEW INVENTIONS.

Improved Machinery for Making Thimbles.

Mr. Francis Pidgeon, of this city (New York, has taken measures to secure a patent for a useful improvement in machinery for making Thimbles. The improvement consists in the employment of two rollers, of which one is divided transversely to its axis, and in combination with a stationary bar. One of the rollers is convex, and is hung on a shaft, the other two parts forming the other roller, are hung on the ends of two shafts, which are capable of moving longitudinally in their bearings, the said shafts having their axis in line, and the parts of the roller upon them having their peripheries of such a form, that when they are brought together they form a roller with a concave periphery, the reverse, (nearly) of the other roller spoken of. The shafts are geared together, so that those of the concave roller will rotate in an opposite direction to the other roller. When a flat bar of iron, suitably heated, is passed between the rotating peripheries, it receives a curve transversely, and in coming in contact with the stationary bar above named, which is placed near the periphery of the concave roller, it is bent around the said roller, by the revolution of which it is formed into a ring. The roller is formed into two pieces to allow this ring to be removed, which it could not be if it were made in one piece.

Machinery for Riving, Jointing, and Shaving Shingles.

Mr. George J. Wardwell, of Hanover, Oxford Co., Me., has taken measures to secure a patent for improvements in machinery for the purpose indicated in the above caption, and which is also applicable to the making of staves and such like articles. He employs jointing knives attached to springing bars, which serve as guides to bolts of any desired width, and allow the knives to adjust themselves to joint or plane the sides or edges of a bolt, shingle, or stave of any width. He also employs reciprocating shaving knives on sliding gates, which can be set parallel for shaving staves, or inclined or tapering for shaving shingles.

Steamboat Boiler Draught Improvement.

Mr. Wooster Harrison, of Port Washington Wisconsin, has taken measures to secure a patent for a new way of creating draught in steamboat boiler furnaces. The invention consists in carrying the draught-pipe or flue of the boiler furnace into the wheel-house and creating a draught, by a partial vacuum which is produced near the centre of the wheel by its revolution. By this means great advantages are obtained, such as dispensing with the chimney in canal boats and river boats, also the prevention of danger by sparks, which are all blown into the water.

Clothes Line Protector.

Mr. Norman Allen, of Unionville, Hartford Co., Conn., has taken measures to secure a patent for a box named "A Clothes Line Protector." The line is wound upon a reel inside of a portable box by a handle on the outside of it. The cord passes through an opening on the top of the said box. There is a ratchet which catches into a wheel on the axis of the reel, and prevents the cord from winding off backwards, while it is being wound up. This is reversed when the clothes line is to be stretched on the poles.

Improvement in Ships' Furniture.

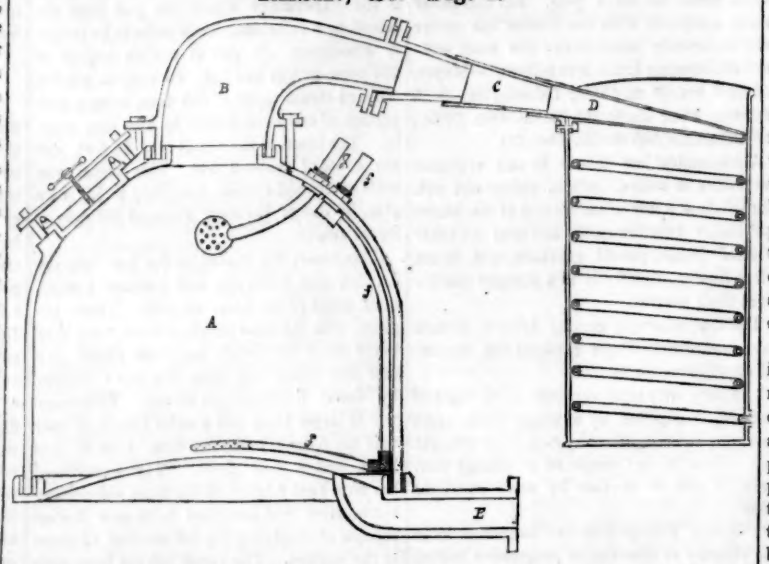
Mr. Charles J. Bradbury, of Manchester, N. H., has taken measures to secure a patent for a valuable improvement in constructing furniture for the cabins of ships, such as tables, &c., so as to make them maintain a horizontal position notwithstanding the changes in the position of the vessel.

Machinery for Making Blinds of Windows.

Mr. Daniel H. Thompson, of Springfield, Mass., has taken measures to secure a patent for valuable improvements in machinery for the manufacture of window blinds. The improvements relate to certain means by which the stiles are bored to receive the tenons or pivots of the slats; the rods and slats are pricked to receive the wires, and the tenons or pivots are turned on the slats at one and the same time; the several parts named, of a single pair, or of a number of pairs of blinds, being placed in the machine and properly adjusted, have the several operations performed upon them without further manipulation. The improvements greatly facilitate the making of blinds, and will tend to reduce their price, beside producing better workmanship than is at present to be found on the majority of blinds.

We do not know of any kind of wooden manufacture so universally useful and used as blinds, and yet we believe there is no species of manufacture, as a general thing, so poorly made. Coarse made, bad fitting blinds are so common that every body seems to count on the same, almost like a natural product. We hope this invention will lead to a general improvement in the blind manufacture.

ROBBINS' PATENT IMPROVEMENTS FOR DISTILLING RESIN, &c.—Fig. 1.



On the 4th of last month (Nov.) Mr. Louis S. Robbins, of this city, was granted four patents for as many different improvements,—one was for Distilling Resin; the 2nd, making Paint Oil; the 3rd, Tanners' Oil, and the 4th, Lubricating Oil. We will endeavor to present the spirit of these four useful inventions in this article; and, first, we will describe the Improved Method of Distilling Resin.

Figure 1 is a vertical section of a distilling apparatus. A is the body of the still; B is a curve pipe connected with the top of the still; C is a movable joint of pipe for connecting the curved still neck with the still worm, D; *f* is a steam pipe, which passes through a close joint in the side of the still, and thence is conducted down the inner side and along the bottom of the same, to near the centre of the bottom of the still, when it is curved into a circular form around it. The annular terminating portion of the said steam pipe that surrounds the centre of the bottom of the still, is perforated with small holes for the escape of the steam during a part of the time of the distilling process. A spiral, or any other form, may be given to the perforated terminating portion of the steam pipe, *f*. A thermometer must be so combined with the still as to indicate the temperature of what may be contained in the interior. Mr. Robbins makes use of Fahrenheit's thermometer. In the distilling of the resin, Mr. Robbins produces therefrom, in a separate and distinct form, acid, naptha, and oil. A sufficient quantity of rosin is put into the still to fill it up nearly two-thirds of its interior space, and then the resin is melted. At the time of making the fire under the still, a sufficient quantity of steam is blown into the still to moisten the rosin; the pipe, C, is detached before the fire is made, because the rosin is violently agitated during the early stages of raising its temperature, and until all the acid and water is expelled. During this agitation the resin is liable to overflow, and should it do so, the worm of the still would be greatly injured, and perhaps an explosion would be the result. The acid will begin to escape when the thermometer indicates the temperature of the resin to be 325°, at which point the fire must be regulated, and the temperature maintained about from 300° to 325°, until the acid shall cease to flow from the neck of the still. When it ceases to flow, the pipe, C, is connected to the still, and the joints of it luted, and steam is then blown in through pipe *f* into the bottom of the still. The temperature is kept at about the same point. As the steam rises through the melted matter, it takes up and carries with it, in the form of vapor, the naptha contained in the resin, and these two mingled vapors pass off into the worm, where they are condensed and flow into a suitable vessel. This operation will continue until all the naptha contained in the resin has been expelled; this is indicated by the character of the discharge, or when about 15 per cent. in bulk, of the contents of the resin in the still has passed over.

Figure 2.

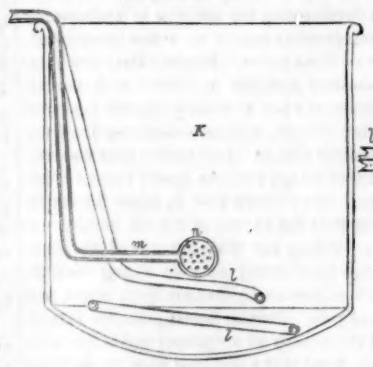
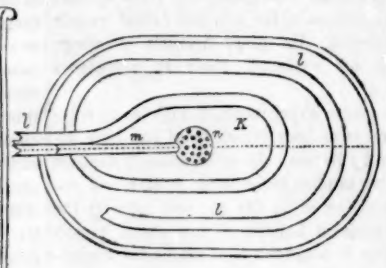


Figure 3.



As soon as the naptha has ceased to flow from the worm of the still, the fire is increased until the contents of the still are raised to 500°, the steam all the while being allowed to flow in, and is kept flowing in during the whole remainder of the process. The oil commences to pass off in vapor along with the steam when the heat is raised to 550°, when the mingled vapors pass into and are condensed in the still worm, from whence they are discharged into a suitable receiving vessel. The temperature of 550° must be kept up until the flow of oil nearly or quite ceases. The bulk of oil should be about about 25 per cent. of the original quantity of resin.

The contents of the still are then raised to 600°, when the flow of oil and moist vapor will re-commence and continue until a second quantity of oil, equal to about 25 per cent. of the resin, is discharged, when the flow of oil will nearly cease. The temperature of the still is then raised fifty degrees higher, when the flow of moisture and oil will again re-commence and continue under the same heat, until a third quantity of oil is discharged, equal to about 12½ per cent. of the bulk of resin, originally placed in the still, after which the fire is to be extinguished. The residue left in the still is of a nature like pitch; this is drawn off through the pipe, E. The steam pipe, *g*, which passes through a close joint in the side of the still, and terminates in a perforated coil, *h*, in the upper part of the still, is for allowing steam to be injected through it upon the oil when it is in a state of vapor, and this produces a purifying effect upon the oil.

PAINT OIL.—The same still, figure 1 is used for making this oil, but other apparatus (figs. 2 and 3), are also employed. Fig. 2 is a vertical section of a bleaching and purifying kettle, and fig. 3 is a top view of it. *k* is the bleaching and purifying kettle; *l* is a steam pipe, combined therewith in such a manner as to enable the temperature of the oil to be raised when placed in the said kettle, and *m* is a steam pipe terminating in a perforated head, *n*, through which steam is injected into the oil.

A quantity of oil made at 650°, as described, is placed in the still (figure 1), and then the man-hole of the still is closed and luted. The contents of the still are then raised to 650° and kept at that point until the process is completed. At this heat the oil passes off as vapor, when steam is injected into the still through the pipe, *g*. The oil is condensed in the worm, D, and is conducted off into a suitable vessel. The oil thus produced is again distilled in the same way, and when re-distilled it is placed in the kettle, *k*, in which its temperature is raised to about 225°, by steam, through pipe, *l*, and then at that point steam is let in through pipe, *m*, until the oil is freed and until the acid and coloring matter is expelled, when it will be quite clear and fit to be boiled for paint, like linseed oil.

TANNERS' OIL.—A quantity of the oil produced, as described, is placed in the still, (fig. 1), also some slacked lime—about 5 per cent. of the quantity of oil. The man-hole of the still is then closed and luted, and the contents of the still raised to 600° degrees, and maintained at this point until the whole process is completed. The steam is introduced through pipe *f*, when the temperature has reached 300 degrees, and through pipe *g* when it has attained to double that heat. The oil passes in vapor into the worm, D, and from thence flows into a receiving vessel. The oil produced by this process is again distilled in the same manner as that described, but instead of slacked lime, the same quantity of caustic lime is employed. The oil produced by the re-distillation is placed in the purifying vessel, *k*, (figs. 2 and 3), and its temperature raised, as described in the process of producing painters' oil. This oil is clear and pure, and entirely free from acid, making an excellent currier's oil.

LUBRICATING OIL.—A quantity of oil produced as described at 550 degrees, is placed in the still (fig. 1) and a quantity of slacked lime equal to 5 per cent. of the oil is placed along with it. The man hole is luted and the temperature is raised and maintained at about 550°, until the process is completed. The steam is let on as described in making the tanner's oil. The oil passes off in vapor into the condensing worm, D, from which place it is conveyed into a suitable receiving vessel. This oil is re-distilled and treated exactly as that for making the currier's oil, after which it is run into the purifying kettle and treated as before described. It is then pure and limpid.

The claims of these four patents will be found published on page 70, this volume of the Scientific American. The improvements are valuable ones, and are of that kind of products recognized in the old and established charter of patent rights, under the head of "new and useful manufactures." In our country there are fewer patents secured for chemical than mechanical improvements, and much less in number are they than we find in the lists of French and English patents. We hope to see more of them, for it is our humble opinion that, much as we are indebted to mechanical inventions, we are none the less to chemical discovery. The improvements of Mr. Robbins are very valuable.

Scientific American

NEW-YORK, DECEMBER 13, 1851.

Extension of a Patent Beyond Fourteen Years,

The eighteenth section of the Patent Law enacts, that whenever any patentee of an invention or discovery shall desire an extension of his patent beyond the term of its limitation (14 years), he may make application therefor, in writing, to the Commissioner of Patents, setting forth the grounds for it.—The patentee shall furnish a statement in writing, under oath, of the ascertained value of the invention and of his receipts and expenditures, sufficiently in detail to exhibit a true and faithful account of loss and profit in any manner accruing to him from and by reason of said invention. And if, upon a hearing of the matter, it shall appear to the full and entire satisfaction of the Commissioner, having due regard to the public interest therein, that it is just and proper that the term of a patent should be extended, by reason of the patentee, without neglect or fault on his part, having failed to obtain, from the use and sale of his invention, a reasonable remuneration for the time, ingenuity, and expense bestowed upon the same, and the introduction thereof into use, it shall be the duty of the Commissioner to renew and extend the patent by making a certificate thereon of such extension.

We have here quoted the substance of the law governing the extension of patents, and if it means anything, it means that whenever a patentee has been reasonably paid for his invention, no extension can be granted; it is therefore a question of fact, and does not require the legal acumen of a lawyer to expound its meaning, or to manœuvre at the Department, for the purpose of baffling the Commissioner with astute suggestions respecting "mechanical combinations" or "precise arrangements." Some two years since a patentee of an improved machine for hulling clover seed, presented to the Department in Washington, in writing, an application for an extension of his patent, paid into the Treasury forty dollars, and showed conclusively, as we believed at the time, that he had not been remunerated properly, according to the spirit and intention of the law. The application was quietly conducted, and his success was based upon a *fact* which he supposed was clearly exhibited in his written statements. We will simply add, "the case was rejected and the forty dollars passed into the Treasury."

It sometimes turns out that the very men appointed to expound the law, prove to be the most ignorant of its intent. This is the most charitable construction we can put upon such cases, for it would be ungenerous to suppose that there existed "behind the throne a power greater than the throne itself."

It is a notorious fact that, many parties who have grown rich—immensely rich—by the sale and use of patents, have had no difficulty in obtaining extensions. Now such cases make us feel as if there was one law for the rich and influential, and another for the poor and simple honest patentees. It is greatly to be regretted that such cases do happen, for they are anything but honorable to our country. Where the fault lies we are not prepared to state just now; we merely state the *fact* in order to direct attention to an evil, so that a remedy may be provided for it, by those who have the power to do so; there should be no favors shown to one inventor more than to another; we advocate the application of law to all equally, without favor, at all times and in all cases.

Extension of the Woodworth Patent.

As we stated last week, there is no doubt at all about the contemplated effort that is about to be made to get the Woodworth Patent extended, for seven years more, at the present Session of Congress. We have been informed that parties are now in Washington endeavoring to get the votes and influence of Members of Congress in making a new Bill to extend this patent, for the period mentioned, beyond the time when its present term of extension shall expire. It is confidently predicted by those interested in the extension, that the application will be successful, and many men decidedly opposed to it as a matter of principle, believe that Congress will pass such a Bill. They say—"every man has his price; the owners of the Woodworth patent have money, and know how to use it; and if the history of the past is worth anything at all, there is the strongest ground for believing that what has been done once by that body may be done over again," Thus they speak, but we believe they are mistaken. The patent has been twice extended, once by the Patent Office, and once by special Act of Congress. It has five years to run yet, and how its owners should be so alert on taking time by the forelock now, is not a mystery.

We like to see inventors rewarded, and none have such claims upon their genius as their own children. William Woodworth has long been in the grave, and were his descendants alone to be benefitted, we would not say a word against the extension, but overgrown monopolies are an injury to the whole people of the Union, and it is well known that a number of overbearing and overgrown monopolies are upheld and sustained by this patent. The extension about to be applied for is intended to sustain those monopolies and perpetuate an evil which should not be tolerated in the Republic.

The Committee on Patents should be empowered to send for witnesses to examine them in reference to this patent; there should be no secret work allowed about it, and we believe there will not be. We would not say a word against the extension of a patent for a useful invention where the patentee has not been rewarded for his genius, time, and labor, and we know there are many such cases, and before this patent should be again extended, it would be no more than right for members of Congress to inquire if there are not many inventors who have been denied every favor, against the broadest claims of sympathy. We are the advocate of inventors' rights, but truth, right, and justice for the whole people claim our fondest regards, and in speaking against the extension of this patent, we are actuated solely by such considerations as would make us feel guilty if we held our tongue.

The Fire Annihilator.

It was contended by Dr. Colton, in his lecture in Tripler Hall, that if the Annihilator was successful but *once*, it should inspire confidence in its merits. This we do not believe, for he was quite successful in extinguishing a little flame, and yet that was no proof of its utility. A quart of water will put out a small fire, so will a wet blanket, and so will the Annihilator. At one experiment made in London, by Mr. Phillips, the Annihilator exploded, to the great danger of the lives of those invited to witness its operation. In No. 1, this volume of the Scientific American, we mentioned our fears respecting the explosive nature of the igniting substances, and the account about this explosion in London, published only a few weeks ago, confirms the opinion we previously expressed. A recent experiment made in Cincinnati was an entire failure, as was another in the Champ de Mars, at Paris. Mr. Phillips was present at the experiment in Paris; the building was 40 by 25 feet, and made of wood, upon which a dozen Annihilators expended their powers in vain. The fire was brought down apparently extinguished by such a united force, but all at once the flames burst out again, and it was found necessary to call in the aid of the firemen.

The management of the patent in this country does not meet with our approbation; it is evident that the Company wish to make the most they can out of it.

"There is one objection of great weight against this instrument:—there is first to be purchased a machine, always to be in order; there is next to be purchased the compound, or charge, which constitutes the annihilating principle. The right to manufacture this compound is reserved as an especial privilege, and retained at distant places. A single charge not proving efficient, you must put in another. If the charges are not perfect, or the machine out of order, and you have rested securely on their power, you are at the mercy of the element. It cannot be safe to induce a reliance on such elements on which there are so many contingencies. A fire bucket of water—water to be readily had, without money or price—immediately applied, will arrest nine-tenths of the fires, and this is much more than can be said of the new instrument."

With the sincere object in view of doing good to the community, we state that our only desire in saying so much upon this subject, is to impress upon the minds of our people the necessity of not trusting too much in the Annihilator. A liberal supply of water always on hand, and a sleepless vigilance to prevent fires taking place, are the sure and certain *annihilators*. Persons having Annihilators on their premises, would be liable to become careless of fires, from a vain confidence that if one took place it could be so easily extinguished, and at so little expense. Experience has afforded us an abundance of testimony to make us repose but very little confidence in the utility of the Annihilator.

That a successful experiment can be made, and may be made with the Annihilator, we do not doubt. It is easy to make a successful experiment when all means are employed, and all the designs have been laid to make it successful. But that is no proof of general utility, or even moderate success.

Science of Man.--Eating Human Flesh.

A recent book on New Zealand affords the pleasant information that human flesh is tough, and, to be palatable, requires more cooking than any other meat—but, once "done to a turn," it is of singular tenderness and sweetness. A voyager by the name of Jenkins endeavored to save the life of a young female slave, who was about to be killed and eaten in New Zealand. He offered any quantity of pigs for her, but the chief said, "A piece of Maoori's flesh is much better than pork," and he killed her and ate her. The same account mentions a highly civilized New Zealander who had become partner in an English commercial house. He had in his younger days been addicted to human flesh, and, being a very candid and really high-minded man, he admits, that, though he has now acquired totally different tastes, the relish with which he partook of cannibal feasts—especially when the fleshy part of a young female was served up—is still a matter of by no means disagreeable recollection to him.

A celebrated New Zealand Chief, educated in England—and educated well—after he returned home, became involved in war with a neighboring tribe, and his education seemed but to have deepened his cannibal ferocity. After his first war feast, it was remarked that he was more addicted to the human banquet than any of his followers.

The taste for any kind of food seems to be acquired. Food esteemed a luxury by one race, is loathed by another; but it has been remarked that all cannibal races have a peculiarly fierce and repugnant look in comparison with the non-man-eating races. There are some who lament over the decrease of the inhabitants of the Pacific Isles, and attribute their decrease to the *evil* influence of civilization. This is a great mistake,—cannibalism left the root of self-destruction among those races. Why? It is well known that in any country where the females are greatly disproportioned to the males—in fewer number—that a decrease in the number of inhabitants is the certain result. This is the case with the native races of the Pacific Isles,—the males are about 100 to 80 females. More females were destroyed than males during their native wars, and they have a hard and bitter lot. Civilization has ameliorated the condition of the females, and a turning point may not be far distant, at which the Pacific native races may stop decreasing. This opinion is adverse to all those who have written upon the subject, but they all state, too, that the mixed races always dwindle away (a mixture between the whites and the Pacific native races). The Pitcairn Islanders, however, afford an irresistible argument against such conclusions. They have increased—are a mixed race—and are splendid specimens of moral and physical men.

Cure for Consumption.

Phosphate of Lime, the new remedy for consumption, is now for sale at the drug stores in a precipitated form; it can be used by suspension in cod-liver oil. Cod liver oil has become a great curative, according to the prescriptions of some physicians, but it surely would require a great deal of blind faith from us to believe that it has such general merits as some physicians attribute to it. Pure olive oil, from its very nature, being identical in principle with the carbon principle of the fat of man, appears to us to be far better adapted, as a physical remedy, for man than any other kind of oil whatever. It is easy of digestion, sweet, and pleasing to the taste. The only difficulty will be to get it pure; but there is also very little pure cod-liver oil to be found.

Kossuth.

This illustrious exile arrived at this port in the Humbolt, on Friday last week, and received a public welcome into this city on Saturday. It was one of the greatest, if not the greatest public demonstration ever witnessed in New York. All the hearts and houses of our city seemed to have been thrown open to bid him welcome. Never have we witnessed such enuthusiasm towards any man, and we have never heard so many favorable remarks respecting the appearance of any public hero. It is not for us to say anything about the procession, or to present any speeches made to him or by him. His personal appearance is winning. He has large full and light eyes, although he is dark haired, and of a dark complexion. But his eyes reveal a most kindly nature, and are an index of a great mind. He is not tall, is of a firm but slight build, graceful in his movements, and there is an air of shrewdness also about him which wins confidence at once. It is our opinion, from reading his speeches, that he is the greatest of living orators, and were he as well acquainted with the English language as he is with his own native Magyar, he could carry every assembly in our country along with him, with a perfect whirlwind of enthusiasm. What the end of these things is to be we cannot tell; we have no hope of seeing Hungary an independent State; it cannot be done, that is our opinion. An agitation to make it a constitutional State under Austria, as it was, would ultimately be successful, we think; this is our only hope.

Post Office Matters.

By the Report of Postmaster General Hall, we learn that the gross revenues of this Department for the fiscal year, including appropriations for franked matter and foreign postages, collected for and payable to the British post-office, amounted to $6,727,866 78.

The expenditures for the same period (excluding $20,589 49 paid for mail services on the Ohio and Mississippi rivers in 1832 and 1833, and the amount paid to the British post-office for foreign postages collected for and payable to that office) amounted to $6,024,566 79; leaving a balance of revenue over the proper expenditures of the year of $703,299 99.

The receipts for postages during the year (excluding the foreign postages collected for and payable to the British post-office) amounted to $6,345,747 21, being an increase of $997,-610 79, or 18·64 per cent. over the like receipts for the preceding year.

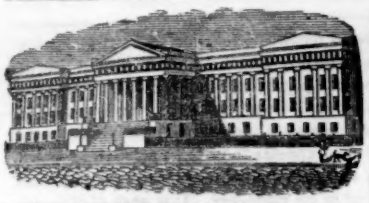
The operation of the new Postage Law during the first quarter, shows a large falling off in the amount of postage received.

The surplus of the revenue now on hand is, however, so large, that no further appropriation from the treasury, in aid of the revenues of the Department, is required for the current fiscal year; but an additional appropriation for the year ending June 30, 1853, will probably be found necessary The postmaster recommends adherence to the present letter rates, and advises against a further reduction until justified by the revenue of the Department. He also recommends that the rates of postage on printed matter be so revised as to render them more simple, and more uniform in their operation upon all classes of printed matter.

Fancy Job Printing.

Messrs. Oliver & Bro., 89 Nassau street, have the greatest assortment of beautiful designs for handbills, circulars, blanks, cards, etc., we have ever seen. Inventors, manufacturers, and merchants, will please bear the above fact in mind.

Prof. Page's Electro Magnetic Engine has been recently patented in England; we shall notice this at greater length, next week, along with other inventions patented abroad.



☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING DECEMBER 2, 1851.

To Cyrus Baldwin, of Manchester, N. H., for improvement in Looms for Weaving Bags.

I claim first placing the cams upon one or more shafts, in such a manner that they can be moved so as to change their relative position in regard to each other, with or around the shaft, if upon separate shafts, or around the shaft, if upon the same shaft, in combination with the devices, substantially such as are described, or their equivalents, for releasing, changing, and holding said cams, as may be required for the purposes set forth.

Second, the pin on the spring in combination with the pawl or their equivalents to force back the rod, and propel the wheel by the pin, acting against the inclined sides of the notches, so that the pin will fall back on the groove, and allow the wheel to be propelled by the pin.

To Wm. Bushnell, of New York, N. Y., for improved Hand Drill.

I claim the combination of the helical spring with the screw upon the drill shaft, and the opening or closing nut or screw nippers, the whole being applied in the manner substantially as described, and operating for the purpose of controlling all the required movements of the drill, in the line of its revolution, in giving it the pressure upon its work, controlling the said pressure, and withdrawing it from its work, as fully set forth.

[See engravings, No. 5, Vol 7; it is a good invention.]

To Cyrus C. Cole, of Rushville, N. Y., for improvements in Hurdle Fences.

I claim the method of locking and supporting the same, by means of the notched sills and lock braces as described.

To Carlos W. Cook, of Lowell, Mass., for improvement in machines for Crimping Package Papers for Soda Powders, etc.

I claim the combination and arrangement of the surfaces, (ten) in the manner substantially as represented, and for the purpose of folding the paper in a trough-like shape, and in other respects convenient for being filled with powder, and folded together.

To Wm. N. Raines, of Thomson, Ga., for improvement in Railroad Switches.

I claim, first, the combination of the stationary single casting, with the single casting or switch, each having a guard on the inside thereof, whereby the said permanent single stationary casting is made to subserve the purpose of the ordinary frog and auxiliary switch, in connection with the turn-out side of the main track, as described.

Second, I also claim providing the movable casting on the inside thereof, with a guard for the purpose of guiding the train of cars over the switch, in a straight line when running, and thus prevent the cars from passing on to the tur-nout rails, when the switch is in the position shown, the projection and frog being of sufficient length in connection with a guard, to guide the train on to the main rail as described.

To Jn. C. fr. Saloman, of Cincinnati, O., for apparatus for Propelling and Steering.

I do not claim the peculiar wheel here used as propeller, but I claim the combination of the water ways in the rudder, with a water wheel and submerged propeller to be operated by hydraulic pressure for propelling and steering vessels, substantially as set forth.

To F. C. Goffin, of New York N. Y., (assignor to Chas. J. Gaylor, of same place,) for improved Lock for Safes, etc.

I do not claim the knobs and collars with the numbers on them. Neither do I claim a series of tumblers, but I claim the talon with the stud attached to it, in combination with a series of tumblers having curved slots in them; said talon and tumbler acting as described, viz., the talon being thrown up by the key, during the second revolution, and the stud in consequence, placed on the outer side of the tumblers, the talon being held up by the catch, the catch on the talon bearing against the stump, and preventing the bolt from being moved back or withdrawn, the talon requiring to be let down when the bolt is to be withdrawn, so that the stud may work or slide in the curved slot, in the tumblers, and the catch be free from the stump, the bit of the key, in turning, acting upon the end of the talon, and shooting back the bolt substantially as described.

[It seems to be impossible to make any improvement in locks, but this is asserted to be a very excellent improvement.]

To Benj. Hinckley, of Troy, N. Y., for improvement in Railroad Car Truck.

I claim having the frame of a six wheeled truck immediately on the centres of the front and rear axles, by a shank and socket, and to the centre axle by guides in combination with horizontal, diagonal, or other bracing, connecting and operating said wheels, so that they may adjust themselves to any lateral curvature in the track, and at the same time allow either of the sets of wheels to pass over any obstruction, without raising the other sets from the track, and for the purpose, also, of allowing the set from which the weight is removed to still retain its position on the track for guiding the others, as fully set forth and described.

To Jos. H. Moore and Wm. P. Parrott, of Boston, Mass., for improvement in Steam Carriages for railways.

We do not claim the combination of a steam engine with the axles or body of a carriage. Nor do we claim any arrangement of it, by which it is directly applied to a fixed axle, or one so connected directly with the carriage body, that other than a rotary motion, it can have no horizontal and rocking movements independently of the same; but we claim the arrangement or arranging the steam engine directly on a movable truck frame of a long car or carriage, in combination with arranging the boiler or steam generator, on or in the carriage body or frame, and connecting the engine and steam generator by a flexible pipe, or pipe having a bale and socket or other equivalent connection or joint, such as will allow of all the necessary rotary and rocking movements of the truck frame and carriage body, the whole being substantially as described.

To Walter Sherrod, of Providence, R. I, for improvement in Expanding Mandrils.

I claim first the use of an expanding nut or shell formed in segments whose interior faces have portions of a screw thread cut thereon, which fit within, and correspond with the thread of a taper screw of the mandrel.

Second, the manner of holding together or retaining in their places the several segments of the expanding shell or nut, by means of a coiled spring or springs encircling the segments and made of sufficient length to admit of the nut expanding without destroying the confinement or hold of the segments as described.

[This is a very necessary and good improvement.]

To Thos. Burrows, of Dedham, Mass., for improvements in machines for Stretching and Drying Cloth.

I claim the combination of the two winding and lengthwise stretching contrivances or stretchers, the two widthwise rotary stretchers, and the three or any other suitable number of drying cylinders, substantially as described, so as to enable a person to cause a piece of cloth to pass, in one direction, over and around the drying cylinders, and next in the opposite direction as many times as may be desirable, in order to stretch, dry, and finish the same to the extent that may be required.

To C. O. Crosby, of New Haven, Ct., for improvement in the mode of Papering Pins.

I claim the new manufacture of "book pins," formed by folding the paper in parallel folds at regular distances from each other, producing fan-like or zig-zag folds, which allows the paper of pins to be closed into compact form, without rolling or winding, for the purposes set forth.

To Daniel & Geo. Duchemin, of Cincinnati, Ohio, for improvement in machines for Working Clay.

We claim, first, the fixed double eccentric cams, in combination with the pitmans, attached to the slides, and by means of L L giving motion to the pawl, and through them to the rack and the wheel, for the purposes set forth and described.

Second, we claim the particular arrangement and combination of machinery, as set forth, in combination with the tempering wheel, especially the double eccentric, and the pitmans or connecting rods, the slides, with the pawls, the connecting bar, the shifting rod, and the rack, as applied to tempering clay for making brick, or any other purpose, or any equivalent device or arrangement of machinery for accomplishing the same purpose substantially in the same manner.

To James Maginnis, of Lockport, N. Y., for improvement in Tailors' Measures.

I claim the gauge designated by the letters A and S, this gauge has two arms slit through the centre from the cross bar down; the front arm extends up and forms a semicircle over and around the top of the inner arm; this semicircle is slit through the centre and forms a way for the two shoulder straps, which are attached by a pivot to the top of the inner arm to turn on with screws to set them to the desired place. This gauge moves horizontally on the strap, from the front backward, or vice versa, until it strikes the front of the arm hole, and locates the same, and is set by screws to the desired place: again the gauge can be drawn perpendicularly so as to increase the length of the shoulder for a very full breasted man, or contracted so as to fit a hollow breasted man.

To Theodore Noel, of Memphis, Tenn., for improvement in Winding Watches.

I claim the application to watches of the machine keys, substantially as described, and illustrated, which keys and their boxes are enclosed by the watch case, and form a part of the watch, rendering the use of ordinary watch keys unnecessary, without the expense and great friction of the complicated machinery heretofore used.

To L. E. Stilwell, of Franklinville, N. Y., for improvement in Carriage Perch.

I claim constructing the front extremity of the perch, so as to form a spindle, which passes through a tube on the turning plate, to connect it with the front axle tree, and at the same time to form a hinge, on which the front axle tree can rock, the latter being a new duty additional to that which the forward extremity of the perch has heretofore performed, thus increasing the efficiency without increasing the complexity or cost of the coupling.

To T. T. Strode, of Coatesville, Pa., for improvements in machines for Boring Holes in Posts.

I claim combining the pivoted bar, provided with a catch and inclined plate, and long arm and stop, or pin, with the gauge bar, provided with rows of pins, and mounted in bearings in the inclined carriage, whereby the movement of the latter is regulated in moving the timber laterally, in boring a series of holes, as described.

I also claim the combination of the pivotted beam, inclined plane, inverse half nut screw, and propelling screw shaft, whereby the carriages are made to advance toward the boring tool, and is disengaged for the purpose and in the manner described.

I do not confine my claim to the precise construction described, but to use such a form of construction as may be best adapted to accomplish the desired object, by means substantially the same.

To Chapman Warner, of Louisville, Ky., for improved Foundry Apparatus. Patented in England, Oct. 5, 1849.

I claim, first, the method of making moulds for castings, by impressing the pattern into a measured quantity of sand contained in a flask constructed with steps or protuberances and depressions, substantially as described, so that the mould, when finished, may be surrounded by sand, varying in thickness in proportion to the different degrees of compression which it receives by the impression of the pattern, in order that the density or hardness of the face of the mould may be rendered more uniform, substantially as set forth.

Second, I claim the method of charging the half flask with the requisite quantity of sand to form a half mould, by surmounting said flask with a hopper, and pressing the two to and fro beneath a sand box, substantially as described.

Third, I claim the method of detaching the hopper from the flask, after the mould is formed, and of applying it thereto before the sand is introduced, substantially as described.

Fourth, I claim the method of applying facing sand to the flask prior to the formation of the mould, by means of apparatus substantially as described.

Fifth, I claim the method of tempering, distributing and sifting moulding sand, by means of machinery operating substantially as described.

Sixth, I claim the core spindle, constructed substantially as described.

Seventh, I claim the method of filling a series of flasks with melted metal, by a single sprue, by means of a sprue case, with which the flakss are connected, substantially as set forth.

Eighth, I claim the combination of apparatus for tempering the moulding sand apparatus for distributing the tempered sand and sifting it into the sand reservoir, and apparatus for supplying to the flask a measured quantity of sand from the reservoir, with a flask and pressing apparatus, whereby the sand is worked and the mould produced by machinery, operating substantially as set forth.

To Ross Winans, of Baltimore, Md., for improvement in Running Gear of Locomotives.

I claim the use of steel springs for the support of the weight carried by the driving-wheels of a locomotive engine, in combination with bearing or supporting wheels, placed both before and behind the aforesaid driving-wheels, which bearing wheels support a portion of the weight of the engine, through the medium of steel, air, india rubber, or other springs, possessing the properties herein described as belonging to steel springs, as distinguished from steam springs, for the purpose set forth.

I also claim the employment of steam springs or steam pressure, operating separately from the propelling cylinders, for the purpose of varying the pressure of the driving-wheels for a locomotive engine upon the rail of the road, in combination with bearing or supporting wheels placed both before and behind the aforesaid driving wheels, which bearing wheels support a portion of the weight of the engine through the medium of steel, air, india rubber, or other springs, possessing the properties described belonging to steel springs, as distinguished from steam springs, for the purpose set forth.

To Enoch Woolman, of Damascoville, Ohio, for improvement in apparatus for Opening and Closing Gates.

I claim making a blank space on the lever, and vibrating it so far as to disengage the cogs upon it from the cogs upon the plate, so that the gate may be opened and closed by persons on foot, without the aid and without operating the levers, in combination with the connecting of the bar, or latch, to the lever by a rope, so as to unlatch the gate when the lever vibrates before the cogs on the lever gear into the cogs upon the plate, to open the gate, substantially as described.

RE-ISSUE.

To Robert Newell, of New York City, for improvement in the Manifold Permutation Lock, for doors, vaults, etc. Originally patented Sept. 25, 1838.

I claim, first, the application of slides, or their equivalents, in combination with tumblers, each so constructed that the slides shall be set through the tumblers by a key, or any arrangement of the key bit sections, or the equivalents of the same, and then retained as set, by any competent means, so that on the tumblers resuming their quiescent positions, they abut against the slides and prevent the retraction of the bolt, substantially as described, but independent and irrespective of the means nsed to secure the slide in place.

Second, I claim the manner of fitting the slides with the cramp, and nut, so as to retain the slides in the position they have been placed in by the key bits and tumblers, as described.

Third, I claim constructing the barrel of the key bit in such a manner that it may be inverted with reference to the handle or shank, substantially in the manner and for the purposes described.

DESIGN.

To David Stuart & Jacob Beesley, (assignor to W. P. Cresson), of Philadelphia, Pa., for Design for Stove Registers.

TO CORRESPONDENTS.

A. V. P., of Me.—Your Blower infringes upon no patent that we know of, nor do we see how it can, for the blades are radial like the old blower.

C. D., of N. J.—We tried your paper fire annihilator, made of brown paper saturated in nitre. There were several witnesses present: it is about half as good for extinguishing fire as cabbage leaves. Your criticism on our remarks on the Annihilator show a keenness of perception, which we believe, nobody can appreciate so well as yourself. You need not be afraid of the holster pistol, for it would only be one gas marshalled against another. If sulphuric acid is not produced by the ignition of gunpowder (but there is a small portion) sulphurous acid is, and that is just as bad. You object to gunpowder forming a vacuum; very well, so you should to steam. The gases mentioned suddenly expand and contract, this is the reason why they form a vacuum. You have completely annihilated the gypsum in Phillips' machine,—so far so good. You must feel easy about the stomach since you penned your nitrous letter.

A. F. G., of Geo.—There is a work called Knapp's Mechanic's Assistant, which treats of the Sliding Scale in full; Joplin & Shopmith's Treatise we have not: Parish's Isometric is described in Gregory's Mathematics. The best thing you can do is to copy some good draughts of machinery.

H. W. H., of Ct.—If you will turn over to page 72 of our last Volume, you will find your problem illustrated and described.

E. B., of N. Y.—We will gve yours a place soon.

W. W. S., of Geo.—The price of the pile-driver we do not know; at present we believe none can be sold. If we hear more about it we shall notice through our columns.

E. S. H., of N. Y.—You are quite right about the Rotary Electro Magnet Engine, but the first one made by Prof. Page was a rotary like it. The only mistake made by you is about the arms: the "coil magnets" (round) prevent arms being attached to the rotary iron ring; Prof. Page likes the rotary best.

H. S., of N. Y.—The price of Youman's Chart of Chemistry is $5, and the book about $1. There seems to be no good standard work upon Gas Engineering.

C. of Pa.—The latest improvement in portable Saw Mills, is the patent issued to O. Child, Granville, Putnam Co., Ill., it is illustrated in our last Volume;—Geo. Page, of Baltimore, makes saw-mills: these are both for the circular saws. Messrs. Clark & Overton, of Walnut Grove, N. J., make good Vertical Saw Mills.

D. B. H., of S. C.—We have carefully examined the sketch of your Safety Apparatus for Locomotives, and think it possesses novelty of a patentable character; of its utility we cannot say any more than presume it capable of operating well. Experiments alone will satisfy us and a community interested;—we hope you will succeed.

J. H. B., of Mich.—Your device is doubtless new and patentable; in case you make an application a model will be required. Your Tenonning machine could be patented if new and different from others in use. The power of a common hand lathe is sufficient to drive the Alcott Lathe; the weight without the frame cannot be far from 100 lbs. We do not know how much it would cost to transport them to Adrian.

A. W., of N. Y.—We cannot furnish you the paper for less than $2 per annum; no single subscriber is entitled to the advantages of clubbing rates; we do business upon strict principle, and never vary. The government patent fee is $30; agents charge prices varying from $20 upwards.

T. E. H., of S. C.—We do not know about Mr. Lansing's wheel, except by repute, but it shows great ignorance of the subject on the part of those who have praised it, to call it "action" and "re-action;" these two principles are entirely opposed to one another. "Action and re-action are opposite and equal," every mathematician knows this; we suppose it is a good re-action wheel. Of these wheels we have no drawings, as we have supposed them to be modifications merely of other older wheels; Vandewater's wheel, spoken of in the same book, is not a patented wheel at all; it is an old wheel.

Money received on account of Patent Office business for the week ending December 6.

C. K., of N Y., $52; L & W., of N. Y., $30; B. C. C., of ——. $30; G. G., of N. Y., $15; W. H. H., of N. J., $20; A. F., of N. Y., $30; J. D., of Pa., $10: W. & S., of N. Y., $30: F. P., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Dec. 6:—

M. R. L., of Miss.; G. G., of N. Y.; H. D. T., of N. J.; S. R., of Md.; G. F. F., of Mo.; J. D., of Pa.; G. & P., of Del; A. D. B., of Ga.; W. & S., of N.Y.; F. P., of N. Y.; L. & C., of O.

An Important Paragraph.

To preclude subscribers the necessity of writing for back numbers of the Scientific American, we shall forward all the back numbers of Volume 7, dating their subscriptions from the commencement unless they instruct to the contrary. We shall send the back numbers issued on this Volume until No. 13, after that time the names will be entered from the date of the reception of orders, unless the writer expresses a wish to receive the back numbers.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.
Of Volume 4, about 20 Nos.; price 50 cts.
Of Volume 5, all; price, in sheets, $2; bound, $2,75.
Of Volume 6, all price in sheets, $2; bound, $2,75.

ADVERTISEMENTS.

Terms of Advertising.

One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them at any price.

American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

SECOND-HAND MACHINERY.—One Screw Cutting Machine, in complete order, with counter shaft and belting, nearly new. One portable Engine and Boiler, 4 horse-power, entirely new; 12 hair Looms, improved pattern with cast-iron frames in good order. One 20 horse Beam Engine in complete order. Second-hand pullies, hangers, shafting, belting, &c. Also one 20 inch india rubber belt 175 feet long, very little used. For sale very low by
12 2* WM. D. ANDREWS, 187 Cherry st., N. Y.

A. B. ELY, Counsellor at Law, 46 Washington st., Boston, will give particular attention to Patent Cases. Refers to Munn & Co., Scientific American. 13tf

TO BLACKSMITHS AND SPRING MAKERS.—The undersigned has an application for a patent now pending at the U. S. Patent Office for an improved Elliptic Spring Joint. Its expense is only one-fourth as much as that of those in common use. Upon the receipt of one dollar, a fine descriptive engraving of this joint with directions for constructing the same, will be sent to any person so remitting, and also one individual right to make, use, and vend the same, as soon as the patent is issued. This is no untried invention; it has been tested with perfect success, and reliable certificates from those who have used this joint, will be given on application, post-paid, to S. S. BARRY, Brownhelm, Lorain Co., Ohio. 13 3*

P. W. GATES'S PATENT DIES FOR CUTTING SCREWS—Patented May 8th, 1847.—This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m*

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.
At this Office.

BILLINGS PATENT BAND WRENCH, for Wagons and Carriages.—This article is fully described and illustrated by engravings in No. 7, Vol. 7, of the Scientific American. The Patent Band Wrench applies to wagons and carriages where the common or square nut is used. They are perfectly tight and prevent all dust and dirt from reaching the axle. The wheel is taken off by means of a small pocket key. A Silver Medal was awarded this article by the American Institute at their late Fair in this city. The Bands are manufactured by the Patent Band Wrench Co., located at Claremont, N. H. Smith Van Horn & Co. are the agents for this city. Orders addressed to them, as above, will meet with prompt attention. A. M. BILLINGS,
12tf General Agent for the Co.

ENGELBRECHT & HOOVER, No. 257 Broadway, (Opposite the Park), New York, in the business of a general Patent Agency, and matters connected with the purchase and sale of inventions and patents. At the above establishment any acknowledge good invention, or Letters Patent, can be purchase or sold for any portion of the United States or Europe. 12 4*

A. B. WILSON'S SEWING MACHINE, justly allowed to be the cheapest and best now in use, patented November 12, 1850; can be seen on exhibition at 195 and 197 Broadway (formerly the Franklin House, room 23, third floor), or to E. E. LEE & Co., Earle's Hotel. Rights for territory or machines can be had by applying to GEO. B. CHITTENDEN,
12 2* Agent.

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11tf

TRAUTWINE ON RAILROAD CURVES.—By John C. Trautwine, Civil Engineer, Philadelphia; just published and for sale by WM HAMILTON, Actuary of the Franklin Institute Price $1.

"This is a really good work, and we heartily recommend it to our civil engineers."—[Scientific Am.

"We have carefully examined this work, and regard it as the best that has yet appeared on the subject," &c.—[Am. Railroad Jour. 8 10*

POST'S PATENT SLIDING DOOR FRONTS—For Stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman & Son, 114 John st., N. Y., are general agents. Address (post paid) Wm. POST, Architect, Flushing, L. I. 6 3m

TILTON's Patent Violin.—The undersigned having patented his Violin Improvement, is prepared to exhibit it to the public. Being now in New York, he may be found at No. 18 Park Place (Mr. J. Wiley's), where he will be pleased to see such gentlemen as take an interest in his invention. All communications addressed "Wm. B. Tilton & Co.," as above, or at Carrolton, Pickens Co., Ala.
3 12* WM. B. TILTON.

PROFESSOR ALEX. C. BARRY'S TRICOPHEROUS OR MEDICATED COMPOUND.—Professor Barry does not hesitate to put his Tricopherous, for the two grand requisites of efficacy and cheapness, against any preparation for cleansing, renewing, preserving, and strengthening the Hair, that has ever been advertised or offered for sale. He challenges the associated skill and science of the medical world to produce, at any price, an embrocation that will reduce external irritation, cure ordinary cutaneous diseases and severe cuts, sprains, pains, &c. Sold in large bottles, price 25 cents, at the principal office, 137 Broadway, New York, and by the principal merchants and druggists throughout the United States, Canada, Mexico, West Indies, Great Britain, France, &c. 4 12*

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, are prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Ample opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 5 10

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE,
Hartford, Ct. 7 6m*

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers and manufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments 154 Fulton st. 6 9*

THE SUBSCRIBER has on hand several improved Steam Engines of superior quality, and made of the best materials, particularly adapted to manufacturing, saw mills, flour mills, &c. He will also make to order, at the shortest notice, engines and boilers of from 2 to 50 horse power, with all their appendages; prices reduced. Also, shafting, mill gearing, saw mills, presses, drills, &c. He has also facilities for furnishing lathes, planes, and scroll chucks, of the most approved styles and patterns, at short notice. Chain pumps always on hand, wholesale and retail, at No. 4 Howard st., New Haven, Ct.
10 7* AARON KILBORN.

1851 TO 1856.—WOODWORTH'S PATENT Planing Machines.—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Machine. Price of the machine from $150 to $760. For rights in the unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y.
9 10*

WANTED—By a middle-aged man, a situation where he could make himself generally useful by book-keeping, drawing machinery and architecture, with a house or engine builder, or railroad constructor, or in a factory of any description; and could teach drawing and French. Has no objection going to any part of the Union. Direct answer to E. B. French, Chatham Square Post Office, N.Y. 11 3*

THE SATURDAY EVENING POST, THE Leading Literary Weekly in the Union.—The proprietors think it unnecessary to dwell upon the distinguishing features of the "Post," whose brilliant success, during an existence of thirty years, is a sure guarantee of the future. For the coming year we have made arrangements for the following nouvelletts:—"Eoline, or Magnolia Vale," by Mrs. Caroline Lee Hentz, author of Linda, Rena, &c.; "Trial and Triumph," by T. S. Arthur, author of The Iron Hand, Temperance Tales, &c. &c., &c. The "Post" will also contain, weekly, choice selections, news, bank note list, state of markets, &c. Terms—Single copy, $2 per year, or three years for $5, in advance. Clubs (to be sent to one P. O.), 4 copies, $5; 9 copies, $10; 14 copies, $15; 21 copies, $20, in advance. Address always post-paid. DEACON & PETERSON, 66 south 3rd st., Philadelphia. A copy of the "Post" will be sent as a specimen to any one. 10 5

BALLOONS.—I am prepared to manufacture Hydrogen Balloons of from 1 pound to 50,000 lbs. ascending power to order. Balloons capable of carrying up one or two persons always on hand. The Balloons will be of the most perfect construction, so that any person can, with certainty and safety ascend with them. Instructions to insure success given to purchasers gratis. JOHN WISE, Lancaster, Pa. 9 10*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 9tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J. 7 20*

PAINTS, &c. &c.—American Atomic Drier, Graining Colors, Anti-friction Paste, Gold Size, Zinc Drier, and Stove Polish.
QUARTERMAN & SON, 114 John st.,
9tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y.

MALLEABLE IRON FOUNDRY, EASTON, Mass.—The subscriber continues to manufacture castings of every variety, for machinery and other purposes, of the best quality, at the above establishment, we have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Easton Express, Boston, Mass. All letters will be promptly attended to.
8 10* DANIEL BELCHER.

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, New Haven, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 10tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y.
2tf.

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 7 12*

McCORMICK'S PATENT REAPERS AND MOWERS.—1700 of these machines, for which the great Medal of the World's Fair was awarded, are being manufactured at Chicago, Ill, with the intention of supplying the South-eastern States for the next harvest The gold medal of the Chicago Institute was recently awarded for this Reaper and Mower, tested against two other mowers, in cutting prairie grass; and the first premium of the State Agricultural Societies of Wisconsin, Michigan and Pennsylvania, were also awarded at their late Fairs. Price $120 at Chicago, and $122 delivered at Philadelphia; terms otherwise accommodating. 9tf

SCIENTIFIC MUSEUM.

On the Choice of Spectacles.

Spectacles are usually manufactured of an oval form and small size to render them more elegant; but, as regards their utility, it is infinitely preferable that they should be large and round, covering not only the globe of the eye, but also a part of its vicinity. This is especially necessary for colored glasses employed to mitigate the impression of light, in the cases of photophobia, and congestion and chronic inflammation of the internal membranes. The border of such glasses should extend to the margin of the orbit; otherwise the light, especially that which is reflected from the ground, will strike upon the circumference of the globe, the centre only being protected by the darkened glass; and the impression thus produced is doubly injurious on account of the contrast.

Something similar is true of lenses, when they are oval and too small; refraction takes place only for objects placed in front of the eye, whilst those placed above, below, or laterally, especially during the movements of the organ, present their natural image. A very disagreeable confusion and inequality of vision, and sometimes diplopia, results from this. These effects are more marked when the glasses are bi-convex or bi-concave; for then their diminished curvature at the circumference causes vision to be less clear than in looking through the centre. To obviate this inconvenience periscopic glasses, that is to say, in the meniscus form, may be advantageously employed, convex-concave for the presbytic (with predominance of convexity,) and concave-convex for the myopic (with predominance of concavity.) As to the glasses of cylindrical surface, I have not yet been able to form a conclusive opinion in regard to them. In general, it has appeared to me that they have no appreciable advantages, and that, if they are to be used they should be chosen of a number a little more feeble than other glasses.

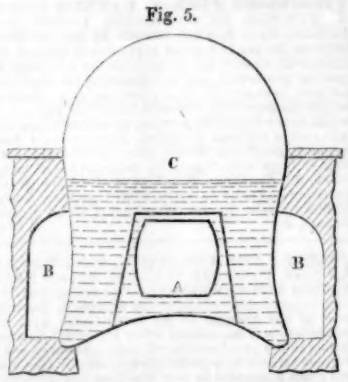
The frame-work of spectacles should be light and of proper dimensions. If it be too large and broad, their immobility is lost, and the eyes are fatigued by the vacillation of the image; if it be too narrow and heavy, the temples are compressed, pain and a feeling of uneasiness are produced in the parts near the eye, and secondarily in this organ, and the sight is thus affected. The glasses should be neither too near, nor too far from each other; if this consideration is not attended to, diplopia and other anomalies of vision may result.

In wearing spectacles, they should be carefully placed parallel, and not obliquely to the iris; for the oblique incidence of the rays impairs the clearness of the image. If brought too near the eye, they hinder the movements of the lids, or the transparence of the glasses is destroyed by the contact of the cilia, of tears, and of mucus. Equal care should be observed not to remove them too far, and place them more or less low upon the nose, which changes their mode of refraction, and gives them a different power from that which their number indicates. To speak generally, they should be placed as near the eye-lids as may be without causing them to come in contact with the cilia. In this respect, the conformation of the nose, of the eyes, and the edge of the orbit, may occasion difficulties which should be vanquished by the optician, in giving to the frames the particular form which the circumstances require.

Tears, transpiration, the vapor exhaled in the respiration, and that contained in the air, are deposited more or less upon the glasses of spectacles. They should, therefore, be occasionally taken off and carefully wiped with a piece of fine linen, or, what is better, fine washleather. When they are laid aside, the surface of the glasses should not be brought in contact with the objects on which they are placed, for, especially if convex, they are easily scratched by the contact of dust, foreign substances, and the inequalities of the surfaces with which they are brought in contact. They should be placed open, on their border; or folded with the branches placed underneath to protect the glasses. It is yet better to place them, each time they are laid aside, in their case, of which the cavity should be lined with a soft material, and should have such a form and such dimension that the glasses should not rub in entering. Before replacing them on the eyes, they should be wiped. If these particulars are neglected, the glasses are scratched, lose their polish, and become opaque in spots or striæ; and these defects, if not early perceived and remedied, alter and enfeeble the sight. The same result ensues if they are dim with dust, vapor, the impress of the fingers; or if the glasses were originally imperfect,—being scratched, of uneven surface, or containing bubbles of air, minute foreign substances, or other defects. The purity of the material of the glasses and the polish of their surfaces are essential; they should therefore be very carefully made from the hardest glass, or from crystal.—[Sichel.

On Boilers.---No. 4.

Fig. 5.



The "Boulton and Watt" Boiler.—It is very commonly stated that Boulton and Watt allowed 25 cubic ft. of space in their boilers for each horse power; but it is certain that Mr. Watt never left any opinion to that effect on record.

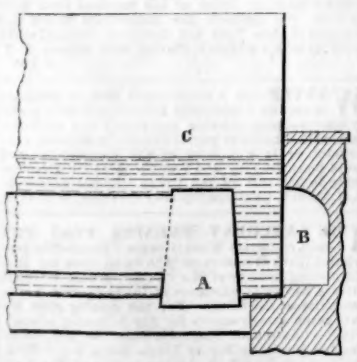
There is only one other way in which such an erroneous statement could have obtained currency, and that is by Boulton and Watt's 30 horse boilers being mistaken for 20 horse, owing to their ordinary practice, when erecting their engines in Lancashire, of putting down a 30 horse boiler to a 20 horse engine.

The annexed figure, 5, is a cross section of a "Boulton and Watt Boiler:"

A is an inside flue; B B are side flues; C is the boiler.

This boiler is 5½ feet wide by 7½ feet deep; but instead of 12 feet, it is 15 feet long, and contains an inside flue measuring 20 inches wide across the top. This, according to the rule for flued boilers formerly mentioned, is considered in Lancashire, England, equal to $\frac{(5{\cdot}5+1{\cdot}66)\times 15}{5}=21{\cdot}49$, or about 21½ horse-power; and if we calculate the cubic capacity of the boiler, including the flue tube, from the same dimensions, we shall find it to be about 18 3-4 cubic yards, or very little more than 500 cubic feet; and this, supposing it to be taken for a 20 horse boiler (which it actually is) instead of a 30, gives just 25 cubic feet per horse power, showing the same result as before.

Fig. 6.



This boiler was equal to driving a Boulton and Watt 20 horse engine with great ease, loaded to full 30 effective horse power, with less than 10 pounds of coal per horse power per hour, including making sufficient steam to warm a large factory, where it is yet at work in Manchester.

With respect to the effect which the propagation of the above assumed rule for boiler room has had on the practice of boiler making generally, there is no doubt but it has been beneficial; for makers and users of boilers have been naturally induced not to depart very far from what they considered Boulton and Watt's standard. We have, in consequence, a great number of boilers of various forms in use, ranging within a few feet above and below this proportion of 25 per horse power, from which a good average proportion can be obtained far more nearly correct than if the practice of engineers had varied at random, or to a greater extent on either side of this imaginary standard, which accidentally turns out to be very near the correct proportion.

Capacity of Water Chamber.—In fixing on the proper capacity of the water chamber of a steam engine boiler, there are not such peculiar difficulties as in the case of the steam chamber; and any one at a first view of the matter would say, as many do say without sufficient consideration, that there cannot be too little water, provided the boiler is filled to the proper height; for it is quite obvious the smaller the quantity of water, the less will be the expenditure of the fuel during the first getting up of the steam after each stoppage of the engine. It is however, not the "getting up" the steam but the keeping it up, that ought to be considered of most consequence.

It is a prevailing opinion that, after the steam is once got up, there is no material difference between keeping a large quantity of water boiling, and a smaller quantity, provided the escape of heat is prevented by sufficiently clothing the boiler with non-conducting substances; but on this subject engineers differ, although why practical men should differ in opinion on so plain a matter is unaccountable. It appears to be very clear that a large quantity of water must require more heat, or heated surface, to keep it boiling, than a smaller quantity, even supposing the heat required to generate the steam to be equal in each case; for there must be a great deal of power expended in keeping the water in motion, and every practical mechanic knows that we never get power for nothing.

On the other hand, when there is too small a quantity of water, it is difficult to keep the steam sufficiently steady. It is then quickly got up, but it is liable to get quickly down again.

The priming of the engine is, also, not altogether unaffected by the quantity of water the boiler may contain, irrespective of the height of the water surface, inasmuch as a smaller quantity of water becomes much sooner thickened. The daily accumulations of whatever dirt or impurities enter the boiler along with the supply water, either in solution or suspension, become sooner concentrated by boiling; consequently frequent cleaning of the boiler, by preventing priming, enable us to work with a smaller quantity of water; we cannot have too little water room; half a cubic yard of water room per horse power, says Armstrong, ought never to be exceeded.

It has been very commonly considered that 10 or 12 cubic feet of water per horse power is as little as ought to be allowed. Tredgold recommends not less than 10, in consideration of the feeding apparatus for water not acting with perfect uniformity, even if ever so delicately adjusted.

A Bear Captured by Chloroform

A paper published at Montauban, Spain, gives an account of the capture of a huge bear, by chloroform, which is somewhat amusing. His bearship had for a long time been the terror of the district, entirely defying all attempts at capture. Even the most daring hunters dared not approach him sufficiently near to give him a death wound, and so the bear was left to his glory, making predatory excursions continually among the sheep and cattle of the surrounding farms. At length a Dr. Pegot hit upon a plan for securing the monster by the use of chloroform. Early one morning he proceeded to the cave where the bear slept, accompanied by a party of peasants, and having made sure by the snow just fallen that the animal was within, the peasants ran and fastened up the entrance with iron bars, which prevented the bear from coming out. Over the bars they stretched blankets to prevent the ingress of air, and now, all being ready, the operation of putting monsieur le bear under the influence of chloroform commenced. The doctor took a large syringe, and having filled it with the somnolent liquid, discharged it through an aperture in the blanket, into the interior of the cave. This being several times repeated the bear soon fell into a deep sleep, when the doctor marched in and secured his prize in triumph. They bore the poor bear away tied limb and limb, keeping a cloth saturated with chloroform constantly at his nose, and took him to the village, where a cage having been prepared, the bear was permitted to awake. Great excitement followed all around as the capture of the wild beast became known, and crowds came to behold him, secured in his cage. In the evening the village was illuminated in rejoicing, while the praises of science and Dr. Pegot fell from every lip. This is the first instance of the capture of a wild animal by chloroform.

Curious Circumstance.

The Pacific News has an article describing the strange effect of the effluvia from the mud flats in the eastern portion of San Francisco harbor, which is at times almost intolerable. On the Saturday night previous to the sailing of the last steamer, from some unknown cause it was particularly intense. Its effects were perceptible on the signs and painted spouts of buildings on Sansome street next day. They appeared black and discolored, as if they had been exposed to a withering heat—the signs were nearly obliterated—polished metallic articles were so tarnished as to be rendered unsaleable, and persons sleeping in the neighborhood described the rush of a current of air at night into their rooms as almost suffocating. This evil is being rapidly remedied by filling up that section of the Bay with sand from the surrounding hills.

The Louisiana sugar crop, it is said, will show a remarkably fair average throughout the State.

LITERARY NOTICES.

The Carpet Bag.—This is one of the most spicy, interesting, and ably conducted papers in the States, and is rapidly gaining a wide circulation. Its chief merits are sterling brilliancy in wit, satire, and mirth-stirring fun. Each number contains several spirited illustrations, *a la* Punch, which are always well conceived and artistically executed. Messrs. Wilder, Pickard & Co., Boston, Mass., are the publishers, and we wish them much success. The Carpet Bag is published in quarto form, on fine paper, and makes a beautiful volume of 416 pages. Terms $2 per annum.

Saturday Evening Post.—The advertisement of this well conducted and admirable literary Weekly appears in another column, to which we invite attention. The editors and contributors are prominently and well known throughout the country.